10

Monitor Mission
July 15 - August 8, 1977

Harbor Branch Foundation

1 Branch Foundation

UNITED STATES – EAST COAST

CAPE HATTERAS

CAPE HENRY TO CAPE FEAR

Mercator Projection
Scale 1:1,200,009 at Lat. 31°44'

SOUNDINGS IN FATHOMS
AT MEAN LOW WATER

(For offshore navigation only)

LIGHTS

Only the principal lights along the outer coast are shown.

HEIGHTS

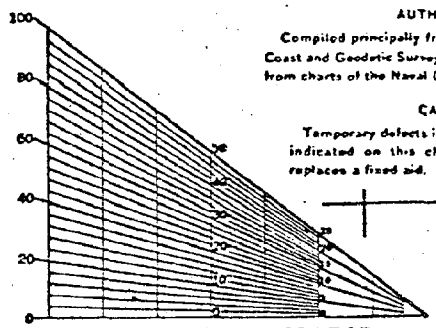
Heights in feet above Mean High Water.

AUTHORITIES

Compiled principally from larger scale charts of the Coast and Geodetic Survey supplemented by information from charts of the Naval Oceanographic office.

CAUTION

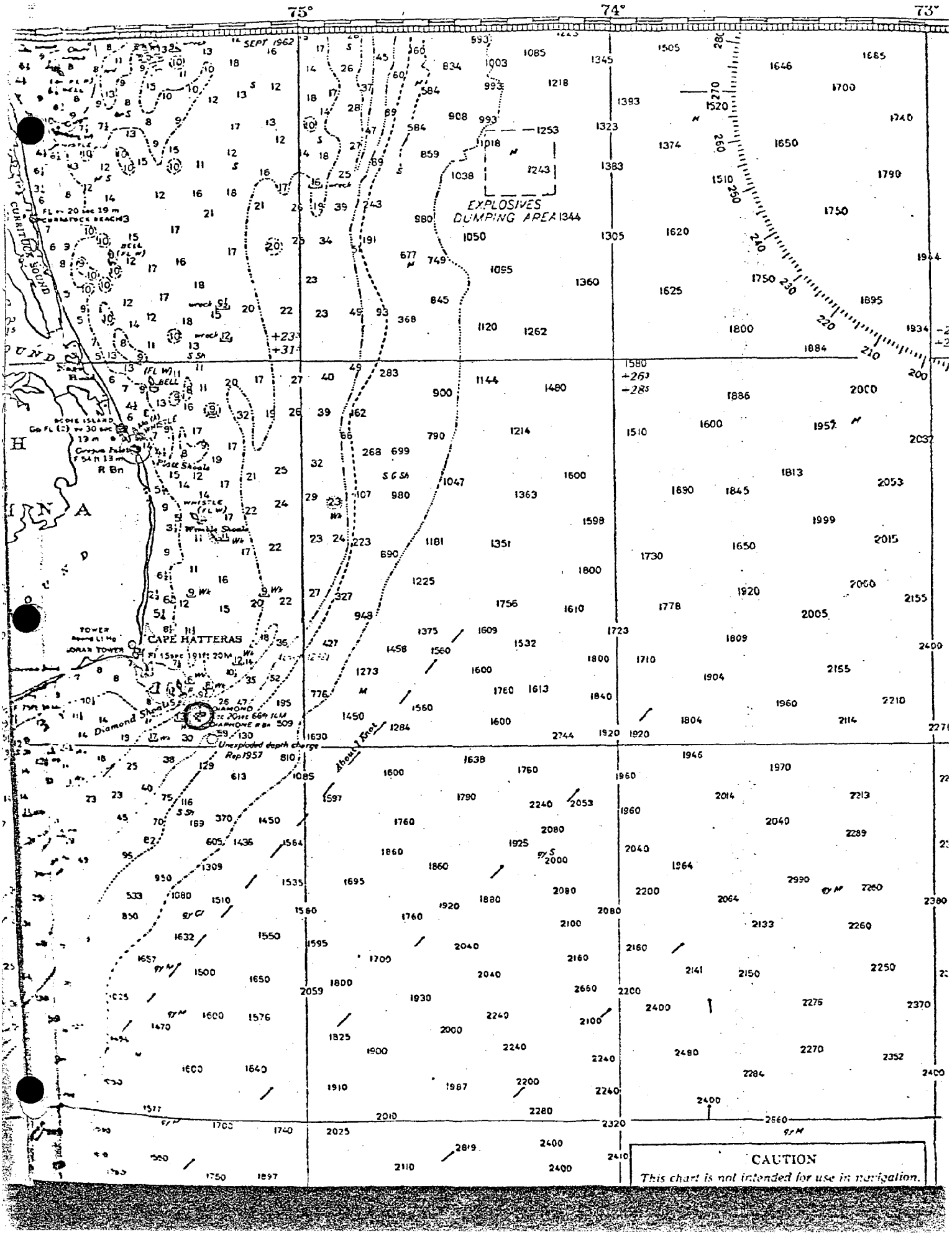
Temporary defects in aids to navigation are not indicated on this chart except where a buoy replaces a fixed aid. See Notice to Mariners.

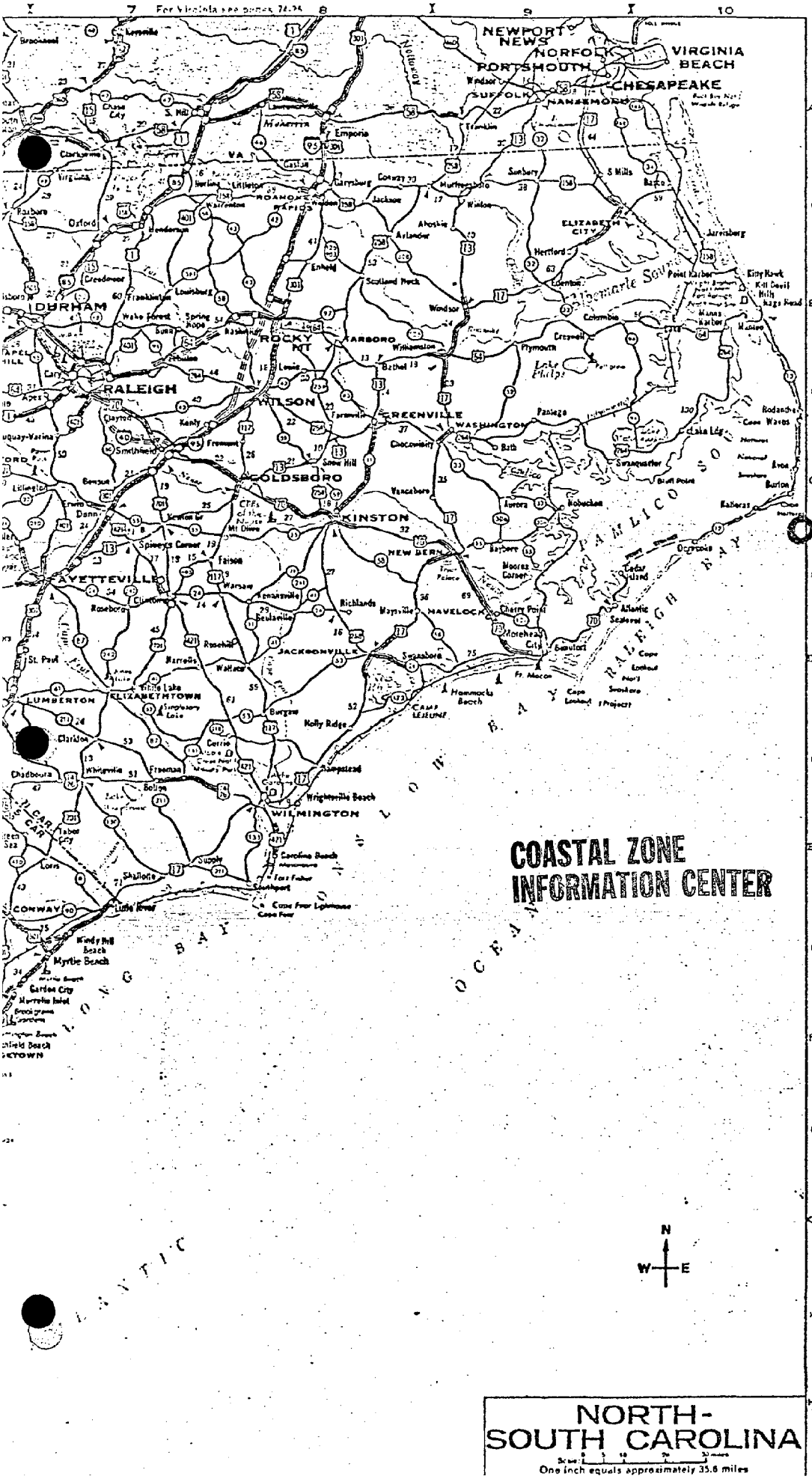


LINEAR INTERPOLATOR

NOTE: This chartmat is a composite consisting of sections of Chart #1000 and Chart #1001.

Harbor Branch Foundation


75°
74°
73°
SEPT 1962
EXPLOSIVES DUMPING AREA
CAPE HATTERAS
Diamond Shoals
Unexploded depth charge Rep 1957
About 1 Knot
CAUTION
This chart is not intended for use in navigation.



NORTH-SOUTH CAROLINA

One inch equals approximately 35.6 miles

NORTH CAROLINA

Population: 5,175,230
(1970 Census)
Area: 52,586 Sq. Miles
Capital: Raleigh

Cities and Towns

SOUTH CAROLINA

Population: 2,617,320
(1970 Census)
Area: 31,055 Sq. Miles
Capital: Columbia

Cities and Towns

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July 25, 1977

PRECISE DATA COLLECTION ON MONITOR BEGINS. For the first time since the site was declared a Marine Sanctuary, a completely organized and authorized expedition is visiting the site of the Civil War ironclad USS Monitor to gather a precise data base of the vessel, which lies upside down.....Conducted by the Harbor Branch Foundation, Inc., Fort Pierce, Fla., in cooperation with the National Oceanic and Atmospheric Administration (NOAA), the expedition began July 17, Sunday. During the course of the mission two surface vessels, two manned submersibles and one unmanned tethered underwater vehicle (CORD) system will be used. Thirty technicians including divers are there.

.....The first week of the planned 19 day expedition was spent performing a side scan sonar survey of the wreck using a Klein Associates instrument installed on the Harbor Branch vessel Sea Diver, and a photo/video reconnaissance of the entire Monitor area by the CORD vehicle.

.....Objective of the expedition is to provide a comprehensive visual and sonar data base to the Marine Sanctuaries Program section of the Office of Coastal Zone Management (OCZM), of NOAA to aid in administration of the sanctuary.....In addition to the sonar survey a photogrammetic survey using stereo photographic techniques will be performed to obtain better orientation of the hull than the August, 1973, original discovery mission provided. A side mission is to recover the Edgerton underwater camera lost in 1973 with a fully loaded film magazine and retrieve a fragment of the Monitor's iron plate that broke off when attempting to recover the camera.

.....Starting today divers will lock-out of one of the Johnson-Sea-Link submersibles to begin to set the photogrammetric grid and perform the other tasks. Stereo photographs can be made with two techniques; with twin-lens cameras taking simultaneous shots, or a camera towed like aerial systems taking shots along straight path with 60% or more overlap to provide stereo viewing of the overlap areas.

.....The surface support ships are the R/V Johnson and the R/V Sea Diver. The Johnson has a below-deck decompression chamber that can mate directly with diver lock-out, lock-in chambers of the two submersibles.

.....Director of Operations of the expedition is Roger W. Cook, who also holds the same position at the Harbor Branch Foundation. On the scene as technical advisers will be Edwin A. Link, inventor of the Link Trainer and official of the Foundation, and Dr. Harold E. Edgerton, inventor of the stroboscopic light and co-founder of EG&G Inc. Acting as technical adviser are Lt. Cdr. Floyd Childress, NOAA Corps and Chester Slama, Chief, NOAA Photogrammetric Research Branch. Assisting

in developing a photogrammetric system is Dr. Donald Rosencrantz, Naval Ocean Systems Laboratory, Kailua, Hawaii. Gordon Watts, underwater archeologist of the North Carolina Division of Archives and History is an on-site archeological adviser..... Sea Technology Associate Editor Michael Mulcahy is on the scene for a substantial portion of the expedition.

.....The Monitor sank while under tow during a severe winter storm Dec. 31, 1962, carrying several men to their deaths. It lies upside down in 220 feet of water with the turret, the "cheesebox" of the "cheesbox on a raft" nickname of the vessel, moved sideways so that a portion of its bottom shows in previous photographs.

.....Location of the wreck is 16.1 nautical miles bearing 159° from Cape Hatteras Lighthouse at 35°00'23" North Latitude, 75°24'32" West Longitude. The sanctuary, so designated on January 30, 1975, is 1.2 nautical miles in diameter.

MORE POSSIBLE MARINE SANCTUARIES TO BE IDENTIFIED. In his May 23 environmental message President Jimmy Carter made reference to Marine Sanctuaries. He noted that only two sanctuaries have been designated since the act went into effect in 1972. ....Now the OCZM Marine Sanctuaries Office of NOAA has been ordered to identify areas in Alaska and elsewhere where offshore development appears imminent.....By Aug. 1 criteria are to be established for evaluation and possible designation of more sanctuaries.

.....Highest priorities will be given to Alaska's Lower Cook Inlet and George's Bank off New England because oil and gas tract lease sales are scheduled for those areas in October and November.....Recommendations from other federal agencies are being sought by OCZM.....The different types of sanctuaries could include: special habitats for fish and rare species, recommended by the National Marine Fisheries Service; research areas by the Environmental Protection Agency; recreational areas by the Bureau of Outdoor Recreation, National Park Service, Department of the Interior; and unique or exceptional areas for protection of one-of-a-kind geological, archeological or living resource features by Interior's Bureau of Land Management, National Park Service, U.S. Geological Survey and Fish & Wildlife Service.

.....The next step after Aug. 1 is to ask government agencies to submit to OCZM information on proposed sites -- the geographic area, justification for the recommendations and summaries of existing data bases to support the ideas. They are due Sept. 9. At the same time recommendations from the public are due. In mid-November the first group of recommended sanctuaries will be sent to agencies for comment.....By Dec. 30 OCZM will submit its recommendations to the Administrator of NOAA.

LAW OF THE SEA CONFERENCE ENDS STILL STALEMATED. When the July 15 end of the Law of the Sea Conference in New York came little progress had been made from what was reported last issue (WL July 11, p.4). Even a composite text on where matters stood and containing what the starting point should be in next year's conference was missing. One source told Sea Technology that the chairman of the crucial Committee I where the subject of how to mine deep sea manganese nodules was debated was writing his own text, using mainly whimsy.....As of last week the situation according to informed sources was that the composite text would come out of United Nations Headquarters sometime this month.....Until that text does appear U.S. Ambassador to the conference Elliot Richardson cannot make a formal report. As soon as it is issued he is scheduled to make a closed session appearance before the House Committee on Merchant Marine and Fisheries.

OCEAN MINING BILL APPROVED BY SUBCOMMITTEE. H.R. 3350, the ocean mining bill that would provide protection for U.S. companies wanting to mine for manganese nodules, last week was approved by the Subcommittee on Oceanography of the House Committee on Merchant Marine and Fisheries after a mark-up session. (Previous news on the

bill in WL for May and June 13). It is now up for approval of the full committee.

.....The major change adopted in the session last week referred to the escrow fund. Premiums will be charged for an investment guarantee which would be paid if and when an international mining regime eliminates private mining.

FRANK AT NOAA HELM. Richard A. Frank is now the administrator of the National Oceanic and Atmospheric Administration (NOAA). His confirmation hearing was held July and the Senate confirmed him the next day. (Details on Frank WL July 11).
....Dr. Robert M. White's last day in office was Friday, July 15. He became Chairman of the Climate Research Board of the National Academy of Science Monday, July 18. He and his wife, Mavis, spent the month of June on vacation in Europe. His confidential secretary Ruth Barritt went with him to the Board.

.....Former Deputy Administrator Howard W. Pollock on July 15 received a letter from President Jimmy Carter accepting his resignation and praising his service.
....Pollock had garnered support to stay another six months to gain retirement time but Frank decided otherwise. However, Pollock, an attorney and disabled veteran, joined the minority staff of the House Committee on Merchant Marine and Fisheries the next day, maintaining his federal service. He was sponsored by the two ranking Republicans on the committee, Phillip E. Ruppe, Mich. and Paul N. McCloskey, Jr., Cal.

PERMANENT DIVING STANDARDS RELEASED, FINALLY. After more than a year of public hearings, punctuated by cries of protest from the commercial diving community and the situation compounded by bureaucratic delays, the permanent set of diving standards has been released. The Occupational Safety and Health Administration (OSHA) of the Department of Labor published them last Friday in the Federal Register.

.....There are noticeable differences in the permanent standards from the proposed set published last November.....This can be attributed to an attempt to make the standards more flexible. One area of flexibility is the exclusions.
- The proposed standards sought to exclude scientific divers from being covered. The permanent set has narrowed the exclusion to only those scientific divers who are not covered as human subjects by the rules and regulations of HEW or some other federal agency during their diving activities.
- Divers engaged in search and rescue or related public safety activities by or under the control of a governmental agency would have been covered in the proposed standards. But not now. Under the permanent set they are excluded. This takes note of the fact that by their nature search and rescue are often performed in remote areas.
- A blanket exclusion allows for deviation from the letter of the law in an emergency or in the interest of preserving the environment, as long as OSHA is notified of the deviation within 48 hours.

.....Commercial diving companies already possessing pressure vessels for human occupancy must comply with the standards by Oct. 20. If the companies do not have the equipment at present they are given six months extra to comply, to April 20, 1978.

PROJECT SEAFARER CONTINUES ITS PRECARIOUS JOURNEY. Project Seafarer, the Navy's planned extremely low frequency (ELF) system to communicate with submarine, continues along its rocky road toward some sort of approval within the Executive Branch, the public and Congress. (Details and analysis in WL April 18, page 4.)

.....As of last week a limited agreement on an appropriation was possible, because the House had knocked all funds for the system out of the appropriations bill, but the Senate had provided $20.1 million, which was $3 million less than the Navy had requested. Full scale development was removed from the Senate version.

.....What would come out of a Senate-House conference committee was anybody's guess.

.....It wasn't until May that internal Department of Defense support was generated for the project, with Secretary Harold Brown writing support letters to two senators. As of this writing there had been no definitive support from President Jimmy Carter, except one background interview in which he equivocated.

.....The Navy's main arguments: the system works; there are no adequate alternatives available now; it is needed for national security; its operation would not result in environmental hazards; and some operational form of Seafarer ultimately will be built.

.....A recent letter from the Navy League to its members, stated, in part, "For reasons you already have heard Michigan is still the best place to build Seafarer. In this connection, a site nomination by the Secretary of Defense is anticipated by mid-September.

"The recently manifested vigorous support of Seafarer by the Administration and the conference committee action itself tend to re-establish a basic fact: The decision on whether to proceed with Seafarer will be made by the Congress and the President, and will not be subject to a state "veto." Interestingly enough, fewer than 1-1/2% of the registered voters in Michigan have actually expressed themselves on the subject of Seafarer, and this was done in referendums prior to the release of the Draft Environmental Impact Statement, and prior to public hearings.

"There appears to be increased public understanding of the facts and also approval of the project. In addition, even some members of Congress from Michigan are indicating a grudging acceptance of it. Congressman Lucien Nedzi (D-Mich.), who served on the Armed Services' Joint Conference Committee has said in a television interview: 'One does have to consider the National interest, and I'm sure tha people of Michigan understand that.' He also noted that if there is no longer a question about Seafarer being environmentally sound, '...I think many would be inclined to support it who don't at the present time.' And Congressman Philip E. Ruppe (R-Mich.), who has been a highly vocal critic of Seafarer, observed on the same program, televised by WLUC-TV, in Marquette, Mich., June 27, '...the longer the Navy has some money for research and development, the more likely it is that the Navy's momentum will ultimately be successful.'

"Congress has suggested to the Navy that it evaluate a smaller system. Such a system would not meet all of the national command requirements, but would provide improved communications with our submarines in certain important ocean areas -- and provide it in time to meet the period of critical need, i.e., when Soviet technology will have made possible the capability of detecting our submarines if they still must use an antenna near the surface to receive their communications. A reduced system would, however, be capable of being expanded.

"A compromise position is a test site in Michigan (already covered by the present Draft Environmental Impact Statement), requiring only about 5% of the full antenna, 130 miles of cable laid almost entirely along existing rights-of-way, installation of the system's transmitter on K.I. Sawyer AF Base, and operation of it in conjunction with the existing Wisconsin Research Facility.

"The final report of the National Academy of Sciences, which is long awaited, is expected within the next several weeks."

MTS-ADC TO SPONSOR DIVING INSURANCE SYMPOSIUM. After an abortive attempt to hold a joint Marine Technology Society New York Section -- Association of Diving Contractors symposium in New York last year, another is now planned. As WL went to press arrangements were in their last stages with several hotels leading to a late November date.

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MAJOR OCEAN POLICY FORMATION UNDERWAY IN ADMINISTRATION. Secretary of Commerce Juanita Kreps has emerged as the key figure in an administration ocean policy formulation effort that is due to climax with its presentation to the second session of the 95th Congress in January. All departments and agencies of the Executive Branch are scheduled to be asked for data and comments in a memorandum she has prepared for President Jimmy Carter's signature.

.....Specifically excluded in the memorandum are operational activities of the Department of Defense. Inputs will be due to Kreps in November for inclusion in an overall document that will be sent to the Office of Management and Budget.

.....It all started with a letter from the president June 16 directing Kreps to have her department act as the lead agency in the effort. As a consequence a task force peopled in large part by persons from Commerce's National Oceanic and Atmospheric Administration (NOAA) is at work, with James Curlin heading the group.....Funneling inputs from NOAA to the task group has been Samuel Bleicher (WL June 13, page 1). Main Line Components (MLCs) of NOAA have been hard at work preparing comments on the various suggestions regarding NOAA reorganization and how they would fit into an overall Executive Branch reorganization. NOAA Administrator Richard A. Frank must meet a deadline of today.

.....The document the MLCs were handed was entitled "Comprehensive Ocean Policy Study." It covers all oceanic matters but Defense.....It is in five parts: introduction; The Nation's Stake in the Oceans; Institutional Framework for Managing the Oceans; Managing the Nation's Ocean and Coastal Resources; Marine Transportation; Marine Environment; Managing Science and Technology; Manpower and Education; Organizing the National Ocean Effort.

.....In dealing with the broad issues of ocean policy the document specifically excludes Defense operational activities, but it does comment on areas such as Navy ocean science and related programs of the Army Corps of Engineers.

.....An interesting sidelight has been mentioned within NOAA dealing with Charles F. Treat, chief of the Science and Environmental Programs Staff of the Commerce Office of Budget and Program Analysis. In the past, according to the sources, he was the nemesis for some of NOAA's ocean programs. Now he is evincing enthusiasm.

TRIESTE II RUNS INTO WORLD'S DEEPEST VOLCANO AT 15,000 FEET. Dr. Robert Ballard is an enthusiastic marine geologist at the Woods Hole Oceanographic Institution (WHOI). Last year he investigated the Cayman Trench, an earth rift between two tectonic plates, south of Cuba, in the WHOI operated, Navy owned, submersible

Alvin in conjunction with the National Geographic Society.....Early this year he investigated hot spots on the deep ocean bottom near the Galapagos Islands in the Pacific Ocean off Ecuador.

.....This summer he was scheduled to exceed the Alvin's 12,000 feet capability in the bathyscaph Trieste II. (Trieste I set the world's depth record of 35,800 feet Jan. 23, 1960 in the Challenger Deep 200 miles southwest of Guam with Navy Lt. -- now Dr. -- Don Walsh and Jacques Piccard aboard.) Trieste II, with a 20,000 foot operational capability, is operated by the Navy's Submarine Development Group I in San Diego.

.....By July 15 Ballard was on his third mission of this summer's expedition with pilots Lt. Cdr. J. K. Newell and Master Chief George G. Ellis.....At 14,000 feet the CTFM (Continuous Transmission Frequency Modulation) sonar picked up a bottom indication 1,000 feet further down, so a slow release of magnetically secured steel shot ballast was begun. The descent rate slowed from 4 feet per second (fps), or 2.3 knots, to 0.4 fps, 0.23 kt. Then suddenly they spotted an 80° slope, and before any action could be taken with the sluggish 78.6 foot long craft it crunched into a submarine volcano. A TV camera was wiped out and other damage done.

.....What struck fear in the hearts of the passengers was the sight of fluid escaping. It turned out to be pressure compensating oil for the camera. If it had been some of the 65,830 gallons of aviation gasoline used for buoyancy (salt water weighs 8 pounds per gallon, gasoline 6 pounds), the situation would have been hazardous.....The pressure at 15,000 feet is 6,750 pounds per square inch, or 486 tons per square foot. The mission was ended.

.....The spot where the volcano was found is similar to hundreds of spots on the mid-Atlantic Ridge. In this case the trench is a seaward extension of an east-west fault that runs through Guatemala. At one point it makes a north-south jog of some 90 miles. At this point the earth is being opened with each east-west earth movement, or earthquake, allowing molten lava to escape, essentially a volcanic eruption.

.....The lava there at depths from 15,000 to 20,000 feet immediately solidifies, entrapping the gases. Lava samples and volcanic glass retrieved by Ballard in the Trieste II on the first two missions has begun to disintegrate at sea level due to the internal gas pressure.

.....On the first dive of the expedition the vehicle went to 20,250 feet, making it the second deepest dive on record, according to Ballard. On the second dive Trieste II stayed down a record 16-1/2 hours and traveled six miles.

.....Trieste II is relatively unmaneuverable and slow. Its value to the Navy and the scientific community is debatable. Many consider it not cost-effective. In addition the CTFM sonar it carries is the same one used on Trieste I in 1960, a Japanese made $800 Furono that cannot detect objects inside 50 yards.

.....In addition to some eloquent and profane language, Washington Letter was told that the bathyscaph should "have a stake put through its heart." But another more level head suggested that it be shuttled to a museum.....Ten years ago Westinghouse Oceanic Division began engineering and fabrication of a 20,000 foot capability Deep Submergence Search Vehicle but was discouraged by lack of Navy interest, which went ahead with the Trieste II, whose clumsiness since then has proved its limited value in general and emergency operations.

ALCOA SEAPROBE BEING FITTED FOR DEEPSEA PHOTOGRAPHY. The research vessel Alcoa Seaprobe, now on lease to the Woods Hole Oceanographic Institution, will be used on occasion to perform deep sea photography using new and highly innovative equipment and techniques.....The vessel, a miniature Glomar Explorer, has a center well and at present 10,000 feet of drill pipe to lower and raise cages that can carry a variety of sensors, cameras, lights and manipulators. Its capacity will be increased to 16,000 feet of pipe.

.....At present Dr. Robert Ballard (see previous story) is working with Emory Christoff, a photographer for the National Geographic Society, preparing new more effective cameras for use in the towed cage.....The equipment is being prepared at Benthos, Inc., North Falmouth, not far from Woods Hole, Mass.

.....Especially innovative is the lighting system. It consists of a glass sphere filled with flash bulbs which can be fired on command. In use with a modified LIBEC (LIght BEhind Camera) system, it will enable cameras to photograph areas 300 feet across, a feat unheard of before. LIBEC defeats light backscatter from particulate matter in water by placing the light source well above the camera so that the backscatter passes by the camera before the shutter opens for the bottom light return.

.....Seaprobe worked the past month for the Navy. Sources still tell Washington Letter that it will be used occasionally to implant and retrieve sensor cages in the deep sea.

THE RUSSIANS ARE COMING. Recently Russian scientists touring in this country applied for visas to visit the Canadian built submersible Taurus operating out of the Marine Science Center of the University of Southern California at Santa Catalina Island off the coast near Los Angeles. The sub is owned and operated by its maker, International Hydrodynamics, Ltd., Vancouver, B.C.....USC had extended a formal invitation to the Soviets through the U.S. Embassy in Moscow.

.....State's Office of Soviet Affairs turned down the request due to Navy objections that averred that the Taurus represented a capability not currently possessed by the Soviets and that location of Taurus operations were within one mile of classified Navy operations at San Clemente Island.

.....The incident was described as a "knee jerk reaction" following to the extreme the policy of Adm. Hyman Rickover against exposure of technology to the Soviets. ....The fact is that neither the submersible itself nor its capability are exotic, and it does not exceed the present Soviet capability. Also, the sub operates within one mile of the Marine Center using a marine railway rather than a mother vessel, and the Center is 25 miles from San Clemente.

.....If the Canadians really wanted to circumvent the situation they could go 12 miles to sea and show it to the Russians or take the sub back to Canada.

MONITOR EXPEDITION SUCCESSFUL. In visibility that on some days was 5 feet, to more than 100 feet on another when videotapes were made, an expedition to the site of the Civil War ironclad USS Monitor lying in 220 feet of water last Tuesday retrieved a camera snagged four years ago and a piece of the ship's plate dislodged in subsequent attempts to raise the camera.

.....Sea Technology's Associate Editor Michael Mulcahy was there and filed this report. (Details on the plans in WL July 25.)

.....Videotape taken from the unmanned CORD vehicle clearly showed the turret area and armor belt low on the keel (now closest to the surface because the ship is upside down).....Gene Melton of Harbor Branch Foundation, was the first diver

to lockout of a submersible, the Johnson-Sea-Link II, on July 27, remaining outside for 40 minutes.

.....The grid for the photogrammetric survey was implanted in one day, much faster than expected. Locked-out divers laid out the 170 ft. polypropylene baseline cord that was graduated each 5 feet. Melton was joined by Richard Roesch. For each diver one other remained in a sub (the Johnson-Sea-Link I was also there), paying out the umbilical cord which piped a 90% helium-10% oxygen mixture to the divers. The longest lockout was 60 minutes. Divers were subsequently transferred to the decompression chamber aboard the R/V Johnson through locks with which the subs can mate.....Currents varied from 0.3 kt. to 1.4 kt. early in the expedition and then increased to 2 kt. They varied around the compass.

.....The Monitor's red lantern, found partly buried, was retrieved first. The piece of plate was lifted by air bag to a rubber boat. The Edgerton camera was sent up by inflatable bag, but when it reached the surface the bag "burped", or expelled air, and the camera went down again. It was retrieved by the manipulator of the Johnson-Sea-Link I that was piloted by Marshall Flake. (Other pilots were Tim Askew and Jeff Prentice.) Dr. Harold Edgerton, designer of the camera, who was on the scene, after seeing the flooded housing, conceded that the second hand value "would probably be pretty low."

ENERGY DEPARTMENT CREATED; OTEC FUNDED FOR $35 MILLION. Congress approved formation of a new Department of Energy last Tuesday, Aug. 2.....Its major components will be the present Energy Research and Development Administration (ERDA), the Federal Power Commission (FPC) and the Federal Energy Administration (FEA)..... Other components and their current locations are: Petroleum and Shale Reserves, Defense; Emergency Power and Resource Activities, Interior; Power Marketing, Interior; Coal Mine Production R&D, Interior; Voluntary Industrial Energy Conservation, Commerce; Energy Production on Public Lands, Interior; Thermal Efficiency Standards, HUD; Oil Pipeline Regulation, ICC; Energy Mineral Leasing, Interior; Rural Electrification Administration Loans, Agriculture; and Fuel Efficiency Standards, Transportation.

.....There was recent agreement in Congress on ERDA's Ocean Thermal Energy Conversion (OTEC) funding, which is set for $35.8 million, $10 million over the amount requested. That means OTEC has jumped from $85,000 in six years, indicating official optimism on this 24 hour-per-day solar energy source. See Sea Technology for August for major coverage on this system.

SEAFARER GETS PRESIDENTIAL NOD, $15 MILLION, MICHIGAN & NAS APPROVAL. Since our last newsletter (July 25 for details) the situation on the Navy's Extremely Low Frequency (ELF) communications tortuous way through the administration and Congress has jelled.....First, President Jimmy Carter wrote a letter to Rep. Elfrod A. Cederberg (R-Mich.) July 29, saying that the system is essential for national security and that none of the development funds will be used for work on a site in Michigan.

.....Then Senate-House conferees followed through by appropriating $15 million for development of equipment for transmitters on land and receivers for submarines.

.....At press time last Thursday it was learned that Gov. William G. Milliken of Michigan was ready to sign a letter to the president indicating willingness to go along with a reduced system provided that the president says that it is in the national interest and that does not become operational immediately. Michigan authorities are now convinced that there is no harm in it unless direct contact is made, such as wet bare feet on the ground above a poorly grounded buried cable, but then only a tingle would be felt. The system will be on federal property.

The system is completely self-contained and requires no outside power source for start-up or operation.

You may send covers to....Donald Saner, DEEP QUEST Operations, Lockheed Ocean Laboratory, 3380 N. Harbor Drive, San Diego, CA 92101.

U.S.S. MONITOR REMAINS TO BE PHOTOGRAPHED BY JOHNSON SEA LINK SUBS

On page 71 of this issue you will find info written by Charles Simpson telling of a new expedition to the MONITOR site. However, a press release just received from NOAA carries other pertinent info so I will print this for you also.

An underwater research project at the MONITOR Marine Sanctuary off the Coast of Hatteras, N.C., is being carried out by NOAA in cooperation with the Harbor Branch Foundation of Fort Pierce, FL, operators of the JOHNSON SEA LINK submersibles. Purpose of the project, which began July 17 and will end Aug. 8, is to compile a comprehensive photographic record of the condition of the Civil War ironclad, to assist NOAA in the management of the sanctuary.

The MONITOR Research and Recovery Foundation, Inc., will make an archaeological and environmental assessment based on videotape, film, and stereophotographs to be obtained during the project.

Operations Director for the personnel, equipment, and surface and underwater vessels is Roger W. Cook of Harbor Branch.

Stereophotography, the key to the operation, is accomplished by means of two cameras, mounted on one of the JOHNSON SEA LINK subs, which focus on a subject from different angles and provide a three-dimensional image. A photographic grid established by lock-out divers is used as a reference ponit by the submersible for taking stereo pair photographs. The resulting photo-grammetric analysis will determine the dimensions of the MONITOR and make possible measurements of the components used in construction of the vessel. NOAA believes that the measurements will be accurate to six millimeters.

Assisting in the development of the photogrammetric system is Dr. Donald Rosencrantz who used the technique to map the remains of a fourth century Roman shipwreck. (Ed note: Dr. Rosencrantz signed our covers for the ASHERAH dives at Yassi Ada , Turkey) Also involved is Dr. Harold Edgerton, who developed the Edgerton Deep Sea Standard Camera that will be used in portions of the photography.

Plans have also been made to raise a piece broken off the MONITOR from an earlier expedition, provided the integrity of the ship will not be affected. Special arrangements have been made with the Naval Ship Research and Development Center, MD, to conduct an analysis of the broken piece to determine the physical condition of the remains of the MONITOR and the extent to which the MONITOR can support itself in any proposed recovery effort.

The Fifth U.S. Coast Guard District is assisting NOAA and Harbor Branch in the project.

Operations Director Roger Cook holds the world's record for a 700' lock-out dive, the deepest on record from a submersible.

The MONITOR site was designated a Marine Sanctuary by the Secretary of Commerce on 1-30-75, under the authority of the Marine Protection, Research, and Sanctuaries Act of 1972. The sanctuary is an area of the Atlantic Ocean around and above the site of the MONITOR, which has rested for 114 years in 220' of water.

Since the project ends Aug. 8 it will be too late to get covers to them in time, but you should already have covers out to them from my past advice. So let us hope that Mr. Cook will find time to document for us. Other covers may be sent to...Mr. Roger W. Cook, Harbor Branch Foundation, Inc., RFD 1, Box 196, Fort Pierce,FL 33450.

THERE WAS ONE SIGNIFICANT DIFFERENCE WITH THE MONITOR STUDY PROJECT this year from last: No one had to go through any permitting process this time (OSN, 27Aug 76). Last year Robert White, head of the Natl. Oceanic & Atmospheric Administration, which has cognizance over the Monitor Marine Sanctuary off the coast of Hatteras NC, denied an attempt by the Monitor Research & Recovery Foundation to study the sunken Civil War gunboat because the permitting process had not been carried through. This year, NOAA ruled that the Harbor Branch Foundation could dive on the vessel without a permit because, as one NOAA source put it, "we wanted the information for management purposes." Harbor Branch donated time and services (the original estimate of the cost of the two week-expedition which just ended was $225,000), and NOAA knew a good thing when it saw it.

Harbor Branch had been working with the Monitor foundation, which currently holds a research permit, OSN is told, but there was a "falling out" between them and NOAA stepped in as the operator. To do so evidently removed the necessity for permitting Harbor Branch because, as the NOAA source said: "The Natl. Park Service doesn't give itself a permit when it wants to learn something about one of its parks. We need information as managers of the sanctuary; we wanted baseline data on the archeological site." The only hitch: For Harbor Branch to proceed, NOAA had to promise that Harbor Branch could run the research project "as they saw fit," revealed OSN's source. NOAA supervision was in the form of having a single NOAA Corps officer aboard the search vessel. The Monitor foundation was present "as guests only."

Results of the project: Acquisition of much of the baseline data NOAA wanted, including precise measurements of the vessel by photography; recovery of one piece of iron plate which the Navy had grabbed hold of three years ago but dropped; recovery of one lantern. Later the Navy may analyze the plate to see how the iron reacts to atmospheric conditions. NOAA is negotiating with the Monitor foundation for an archeological interpretation of the film. The federal agency probably spent about $10-15,000 directly on the project, plus an equivalent amount for salaries of personnel involved. Some 12-18 months and $50,000 will be required to process the photos.

One indication of the sensitivity of these sanctuary projects: When the Harbor Branch divers found the lantern (they had not expected it), there was some thought of hauling it up immediately. However, the NOAA man on the scene took charge for the moment and cleared the salvage with the Navy, the Smithsonian Institution and the Dept. of the Interior. Each of those agencies has some responsibility for some aspect of the Monitor sanctuary.

THE SENATE VERSION OF THE DEEP SEABED MINING BILL WAS INTRODUCED by Sen. Lee Metcalf (D-MT) on 5Aug. (See OSN, 15Aug, for a comparison of it to H.R. 3350, which has been reported by the House Merchant Marine Committee.) The Senate bill is scheduled to be taken up by the Senate Energy Committee in September. It would establish a Deep Seabed Mining Fund "for purposes of paying compensation" to licensees and permittees up to 90% or $350 million, whichever is less for loss of investment as a result of a transition to an international agreement. Compensation would be paid "only to the extent provided for in appropriation acts." The annual premium charged the miners will amount to at least one-quarter, but not more than three-quarters of 1% of the value of the investment.

In addition, no later than six months after the act becomes effective, specific legislative recommendations will be made by the Secretary of the Interior (unlike the House bill which has the Secretary of Commerce in charge of deep sea mining) for the creation of "a special fund...for the payment of U.S. contributions to an international regime" which may be established by a U.N. Law of the Sea Treaty or some other agreement. The secretary will determine "the source, amount, and computation of the contributions required; the structure of the special fund; the tax treatment of the contributions...; and the disposition of the fund" in case an international agreement falls through. The Senate bill calls on Natl. Oceanic & Atmospheric Administration to accelerate its Deep Ocean Mining Environmental Studies. The Senate and House bills are quite similar; attempts have been made to change the Senate bill to agree with the final language of the House measure in many respects.

Civil War Monitor May Be Recovered

RALEIGH, N.C. (UPI) — The man who directed a research expedition to the site of the Monitor says scientists no longer doubt the Civil War Ironclad can be recovered from the ocean floor.

"We all think recovery is feasible because of our experience with marine technology," said Dr. Robert Sheridan, chairman of the University of Delaware's marine biology program.

Sheridan and other scientists were elated by the findings of the four-day expedition in early April to test the environment around the Ironclad, which lies where it sank in the Atlantic Ocean in 1862. The Monitor is upside down in 220 feet of water 16 miles south-southeast of Cape Hatteras.

"It was tremendously successful beyond our wildest dreams," said John Newton, executive director of the Monitor Research and Recovery Foundation in Beaufort, N.C. "We've made tremendous strides, but there's still a lot to be done. The Monitor, designed by Swedish inventor John Ericsson, contained 40 inventions, that could have been patented, had there been time. Among the inventions were a movable turret, flush toilets, a hidden anchor and a force-air ventilation system.

The "cheese box on a raft," as the Minotor was called sank in a storm New Year's Eve, 1862, nine months after its inconclusive battle with the Merrimac.

Among the things scientists aboard the research vessel Cape Henlopen found was that ocean currents on the sea floor around the wreckage are gently enough for divers to explore the area.

There were suspicions that the usually violent weathere conditions in the "Graveyard of the Atlantic," where powerful winds and heavy seas are a common occurrence, would hamper the project. "We were very happy to have that finding," said Sheridan in a telephone interview from his office in Delaware. "We needed to have that rpoof before going on."

But Sheridan, who was part of the research team that discovered the zmonitor in 1973, said it may be longer than first anticipated before divers are sent to probe the forerunner of the modern battleship.

"The diving is being posponed to make more firm decisions abut what they should do," he said.

Scientists are hoping for another voyage in July or August to conduct more experiments, but no date has been set.

Another important finding from the first expedition backed up earlier beliefs that the ocean floor near the wreckage is cohesive enough to hold together if scientists decide to recover the Monitor by digging under the surface and lifting the ship and sediment together.

"Now we know that to dig into the sediment to pull something out of the sediment would require so many tons of force," Sheridan said. "It looks like forces needed to penetrate the sediments are not unreasonable and are within the limits of technology."

A third finding from the April research trip indicated that both the bow and the stern, which face into the ocean floor, are supported from below. Sheridan said this was important because there would be stress on the wreckage during recovery.

Among the suggested recovery methods are freezing the waters and ocean floor around the ship and lifting the entire package for transferral to shallower waters, where further exploration can be done with less difficulty.

Another method calls for the Glomar Explorer to dig under the sea floor below the wreckage and, again, lift the entire mass for removal to shallower waters.

Sheridan, who is also president of the Monitor Research and Recovery Foundation, said that the data from the April voyage indicates either of those two methods would be the best.

A third suggestion, which would involve dismantling the wreckage and removing it piece-by-piece, is turning out to be the least feasible of the three, he said. "Any dismantling would be difficult in its present location."

Sheridan said scientists hope to recover the Monitor before 1980, especially if the Glomar is used. He said the explorer is scheduled to be used for unrelated deep sea drilling expeditions during the 1980s.

Sheridan, a self-described Civil War buff, said he hopes the effort to save the Monitor can be undertaken because "it's clear to us that the wreck is a resource that should not be wasted."

E NEWS AND OBSERVER, RALEIGH, N.C. JULY 17, 1977

Man to Board Monitor for First Time in 114 Years

By JERRY ALLEGOOD
Staff Writer

HATTERAS — Men are scheduled to set foot on the sunken Civil War ironclad gunship Monitor for the first time in 114 years during a three-week research project that begins Sunday off the North Carolina coast.

At least three sophisticated ocean research ships, underwater vessels and numerous scientists will participate in the project calling for divers to descend to the wreck for the first time since it was discovered in 1973.

The vessel, which revolutionized naval warfare with its revolving gun turret, lies in 220 feet of water about 16 miles east of Cape Hatteras, where it sank during a storm on Dec. 31, 1862.

John G. Newton, director of the Monitor Research and Recovery Foundation at Beaufort, said Friday divers would survey the site and take photographs that would provide three-dimensional pictures of the wreck.

He also said divers hoped to recover a metal deck plate that broke off the ship, so it could be studied at Naval Ship Research and Development Center in Maryland.

"This could provide important clues as to the condition of the wreck and whether the Monitor might be strong enough to be raised from its grave," Newton said.

The Monitor Foundation earlier had recommended the studies to determine how well the ironclad had survived more than a century at the bottom of the sea and to help estimate its probable rate of deterioration.

Research vessels operated by the Harbor Branch Foundation, a non-profit marine research organization based in Fort Pierce, Fla., will begin filming the Monitor Sunday. The specially selected divers will operate out of the Sea Link II, the foundation's submersible research vessel.

Newton said 14 divers would begin after initial work and tests with unmanned vessels had been reviewed. He said scientists were encouraged by research at the site in April that indicated currents on the ocean's floor were milder than the swift currents at the surface.

"We think there will be a lot fewer problems than we originally thought," he said.

In addition to the piece of the ship, divers will attempt to recover a camera lost on the wreckage three years ago.

Photography and other tests will be made under the direction of the U.S. Department of Commerce, which administers the marine sanctuary where the wreckage is located.

The department has asked the Monitor Foundation to make a two-year data gathered during this summer's diving. The Monitor Foundation includes university researchers who first located the wreck.

Several trustees of the Monitor Foundation will be at the site during the project, including Dr. Harold Edgerton of the Massachusetts Institute of Technology, who developed underwater cameras for the Monitor research; Dr. William Still Jr., a naval historian at East Carolina University; and Dr. Robert Sheridan, an oceanographer at the University of Delaware.

NEW HAVEN REGISTER JUNE 19 1977

Monitor Crew's Descendants Sought

RALEIGH, N.C. (UPI) — Old family papers and bric-a-brac in attics may help in the recovery of the Civil War ironclad Monitor, if they can only be found.

"We are searching for descendants of Monitor crewmen so we can find out more about the construction of the ship," said John Newton, of Beaufort, N.C., executive director of the Monitor Research and Recovery Foundation.

"We're looking for letters or anything that would help us understand how the interior of the ship looked, where machinery was, events that may have occurred on board.

"What we'd like to know is something like, 'where was the Rivington pump?'" he said. "This will be important in giving divers some idea of where everything was located. They need to recognize what they're looking at."

Newton said he is interested in hearing from descendants of both the 60 Monitor and 300 Merrimac crewmen, since the two ships were so closely linked in history.

He estimated there could be about 10,000 descendants, but so far has only heard from 12 and knows only of about two dozen. He said those he has heard from provided invaluable information.

Mrs. Robert F. Lent of Hancock, N.H., whose great uncle was an assistant engineer on the Monitor, provided a piece of metal apparently salvaged from the ship.

"I had a piece of the Monitor knocked off from the fight with the Merrimac," said Mrs. Lent. "When I discovered they were looking for Moitor descendants, I wrote and asked if they'd like the piece to see if it matched the ship they had found."

Louise Bushnell of New York City gave Newton "a whole lot of stuff" left by her grandfather, Cornelius Bushnell, who financed the ship and intervened with President Lincoln to see that the Monitor's unique design was accepted.

Thomas F. Rowland, of Kennebunkport, Me., is the grandson of the man who built the Monitor and owned the New York shipyard where it was constructed. He has given a copy of the original model to Newton, and still has a set of the original tracings drawn by his grandfather's draftsman.

Descendants of the Monitor or Merrimac, or anyone with information pertaining to the ships, may contact Newton at the Monitor Research and Recovery Foundation, P.O. Box 1882, Beaufort, N.C. 28518.

Expedition Hunting Monito

St.T. Daily News 7-19-77

HATTERAS,N.C. — An expedition is getting under way
determine if it's possible to raise the Civil War vessel Monitor fr
the floor of the Atlantic. Navigational equipment and buoys were t
set Monday off Cape Hatteras, N.C., where the ship was lost i
storm in 1862. The Monitor is best known for its victory over
Confederation ship Merrimack.

St. Thomas Daily New

THE MIAMI HERALD JULY 19, 1977

Firm Attempts to Raise Civil War Ship

From Herald Staff and Wire Reports

FORT PIERCE — There soon may be ootsteps on the decks of the Ironclad onitor for the first time in more than 14 years.

A Fort Pierce firm this week was heduled to make the first exploratory ve to assess the condition of the vessel, hose standoff with its Confederate ounterpart Merrimac foreshadowed odern battleships and submarines.

The Monitor is one of the Civil War's most valuable time capsules" as it lies 20 feet deep in the Atlantic Ocean 16 iles east of Cape Hatteras, N.C.

Harbor Branch Foundation, based in ort Pierce, will do the underseas explo- ation in cooperation with the National ceanic and Atmospheric Administration nd the North Carolina Department of ultural Resources

"It's a tremendously exciting project, ven though we're a long way from ringing the ship up," says John Newton, irector of the Monitor Research and Re- overy Foundation in Beaufort, N.C.

THE CURRENT expedition, scheduled to last three weeks, is to determine exactly what it will take to surface the ship that Newton believes can be restored.

The first ship from Fort Pierce at the scene, the Sea Diver, carried a Johnson Sea Link submersible and a CORD (Cabled Observation Rescue Device) which provides remote control television viewing underwater sites.

The first step will be mapping the bottom with side-scan sonar and exploring the area with a remote control television camera to determine whether the Johnson Sea Link submersibles can go down to the Monitor which is resting on the ocean floor.

The Johnson Sea Links, designed and built by inventor Ed Link, are small acryllid and aluminum diver-carrying vehicles capable of exploring the ocean at depths to 1,000 feet. A pilot and scientist-observer in the transparent acrylic sphere get a panoramic underwater view, and behind the sphere is a three-man aluminium alloy compartment for divers who can leave the vessel.

If the reconnaissance results of the first week are satisfactory, the RV (Research Vessel) Johnson, with a second submersible, will leave next weekend for the site, and the actual underseas exploration will start.

Next week researchers hope to get a series of photographs to develop a three-dimensional model of the site. Then a team of 14 divers will descend to the Monitor to recover a metal deck plate that broke off the ship and a camera that was lost during the 1973 expedition that discovered the Monitor.

NEWTON, WHO was part of the 1973 expedition, said the deck plate "could provide important clues as to the condition of the wreck and whether the Monitor might be strong enough to be raised from its grave."

"When we first looked at the ship, we thought it was probably in very poor condition. We anticipated that the wood- en parts would have been eaten by sl worms. But the structure seemed to intact."

The Monitor helped revolutior naval warfare with its ironclad body revolving gun turret. It sank in a sto Dec. 31, 1862, less than a year after was commissioned.

Besides being the model from wh dozens of 19th Century fighting sh were copied, the Monitor is best reme bered for its battle with the Confeder Ironclad Virginia, which had been c structed from the remains of the scutt Union frigate Merrimac.

The Monitor and the Merrimac fou to a draw in the first naval between onclads on March 9, 1862 off Hampt Roads, Va., one day after the Confed ate vessel had sunk one Union ship a badly damaged another. Neither ves suffered major damage in the enga ment although the Merrimac retrea late in the day and was later destro by retreating Confederates a few mon later.

Harbor Branch Conducting Photo Survey of Wreckage Of Ironclad USS Monitor

Cape Hatteras, N.C. — An agency of the federal government and a private ocean science and engineering foundation from Florida are collaborating to conduct an underwater photogrammetric survey of the wreck of the Civil War ironclad vessel USS Monitor, which sank off Cape Hatteras New Year's Eve, 1862. Operations began July 17, and are expected to continue until the first week of August. Photogrammetry is the science of making precise measurements using photographic techniques.

Habor Branch Foundation, Inc., of Fort Pierce, Fla., has been requested to conduct the survey by the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). The mission has the approval of the State of North Carolina Department of Cultural Resources. Highly sophisticated equipment such as side scanning sonar, small Johnson-Sea-Link type work submersibles, a remotely controlled underwater vehicle and underwater communications gear is being used.

SOME 30 PERSONS from the Habor Branch base in Florida are involved in the on-scene activities of the mission. They are trained specialists in diving, submersible operation, electronics and marine engineering design and production.

The Monitor is 172 feet long, with a beam of 41 feet. She lies upside down on the sand bottom of the Atlantic in some 220 foot of water, approximately 18 nautical miles southeast of Cape Hatteras. The wreck successfully eluded searchers for more than 100 years. No mission thus far has been so ambitious as this one, with its unqiue objective of photogrammetic survey using sterophotographic techniques.

Since 1975 the Monitor and the surrounding immediate area have been under federal protection by virtue of being designated a Marine Sanctuary. Only one other area in the U.S., Pennekamp State Park, Key Largo, Fla., enjoys the same status. Commander Phillip C. Johnson is Officer-in-Charge, Marine Sanctuaries, for the federal agency's Office of Coastal Zone Management. Lt. Cdr. Floyd C. Childress is the NOAA observer in the current Monitor project.

The mission's first stage, a photographic and videotape survey by the unmanned, remote-controlled Harbor Branch vehicle called CORD, was successful, and has paved the way for the second, two-week phase of making precise measurements of the wreck. The latter will involve locking divers out of one of the submersibles for the purpose of establishing a photographic baseline. After the baseline has been set, another Johnson-Sea-Link submersible will photograph the wreck using the time for precision navigation passes. These operations will commence Monday, July 25.

ROGER W. COOK, Harbor Branch Operations Director, stated today that the purpose of the Monitor project is to perform a photogrammetric survey of the wreck and to explore insofar as possible its condition after nearly 115 years of being submerged under the battering seas of the Atlantic Ocean off Cape Hatteras, known as the "Graveyard of the Atlantic," where more than 600 ships have gone to the bottom. The Monitor sank after a violent storm while being towed to join a land-and-sea Union attack on the strategic port city of Wilmington, N.C.

Harbor Branch Foundation, Inc., is a not-for-profit corporation established primarily for research in the marine sciences for the development of oceanographic tools and systems for undersea research.

Harbor Branch Probes Monitor

PRESS JOURNAL-VERO BEACH, FL JULY 27, 1977

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7/31/77

Minisubs Measure Monitor

Ship 'Badly Deteriorated'

By LINDA HARBISON
Post Staff Writer

CAPE HATTERAS, N.C. — Scientists seeking to recover the USS Monitor from its ocean grave 17 miles off Cape Hatteras began taking precise measurements of the old battleship yesterday to determine if it can be raised in one piece.

Two small submarines owned by a Florida research foundation were deployed to the wreck site where divers laid the groundwork for a series of photographic surveys. The Civil War ironclad has been upside down on the sea floor in about 230 feet of water since 1862 when it went down in a storm.

The photographic technique that will be used to assess the condition of the Monitor, the first U.S. gunboat armed with a revolving turret, "is so damn accurate that scientists in the lab will know exactly what we're up against," said Roger Cook, operations director for the project.

The technique is called photogrammetry.

Cook and about 30 marine specialists from the Harbor Branch Foundation of Fort Pierce have been at the site for more than a week, but it was only two days ago that weather and ocean conditions were calm enough to allow the subs to prepare for the survey.

The area where the 172-foot Monitor sank more than a century ago "isn't called the graveyard of the Atlantic for nothing," Cook said.

Divers succeeded Friday in laying a photographic baseline of cord and floats about 15 feet from the ship. The line runs parallel with the length of the Monitor and will be used by the subs as a point of reference to mark photographic passes over the wreck.

The Johnson Sea Links I and II began taking pictures yesterday and will continue next week. Cameras equipped with light intensifiers are mounted on the fronts of the minisubs.

Ed Link, vice president of Harbor Branch Foundation and designer of the miniature submarines, got his first look at the Monitor last week. He said the corroded hull could be raised, but that it would be a delicate operation.

The armored revolving turret, which earned the Monitor the nickname "cheesebox on a raft," apparently was dislodged from the ship when it struck the ocean bottom and the turret is now under the wreck.

Link said it appears the displaced turret may be full of sand.

"We think it's the ship's boilers that are holding it up from the sea floor," he said. "All in all it is in a badly disintegrated condition and raising it will have to be done extremely carefully and knowledgeably.

"The ship can't be turned over. It's like a big platter," Link said.

Link first became interested in locating and recovering the wreck 25 years ago, before modern sonar equipment was available.

The Monitor's resting place was discovered in 1973 by scientists and engineers who have since formed the Monitor Research and Recovery Foundation of Beaufort, N.C.

Dr. Harold Edgerton, a professor at the Masachussetts Institute of Technology, helped develop the side-scan sonar used to locate the ship. Edgerton took part in the 1973 expedition and was invited to take part in the current project as an observer.

Edgerton, the inventor of the ultra high speed strobe light used in photography, had another reason for being aboard the Johnson last week.

He lost a camera four years ago, after lowering it on a line over the Monitor. The camera line got tangled in one of the Monitor's iron plates, he said.

"It's still down there," Edgerton said. "I'm curious to see if its all right and if I can develop the film."

According to Cook, divers plan to retrieve the camera and the plate next week before the ships and subs leave.

Harbor Branch's role in the recovery mission probably will be limited to the photographic survey, but Link said the foundation may help recover the ship at a later date.

"The Monitor is a real national treasure and it should be made into a museum," Link said.

Harbor Branch has invested about $100,000 in the project.

The National Oceanic and Atmospheric Administration (NOAA) is cooperating with the private firm and has had a representative on one of the two ships since July 17.

Phillip C. Johnson, the NOAA representative, said the area where the Monitor sank has been declared a marine sanctuary and is protected by the federal government.

The first stage of the mission involved a videotaped survey of the Monitor, designed by a Swedish engineer to take the place of the old wooden battleships.

The tape shows part of the ship's frame is crushed and a small part missing, apparently damaged when it struck the sea floor.

An unmanned vehicle operated by Harbor Branch performed the videotaped survey.

Cook said the operations are ahead of schedule because ocean conditions were calm Friday, allowing two dives by the subs. Visibility under 230 feet of water was about 75 feet and currents, which can be as swift as 2 knots, were not strong.

The divers, who are transported to the wreck site via the sub, breathe a mixture of oxygen and helium and must undergo about four hours of decompression after each dive.

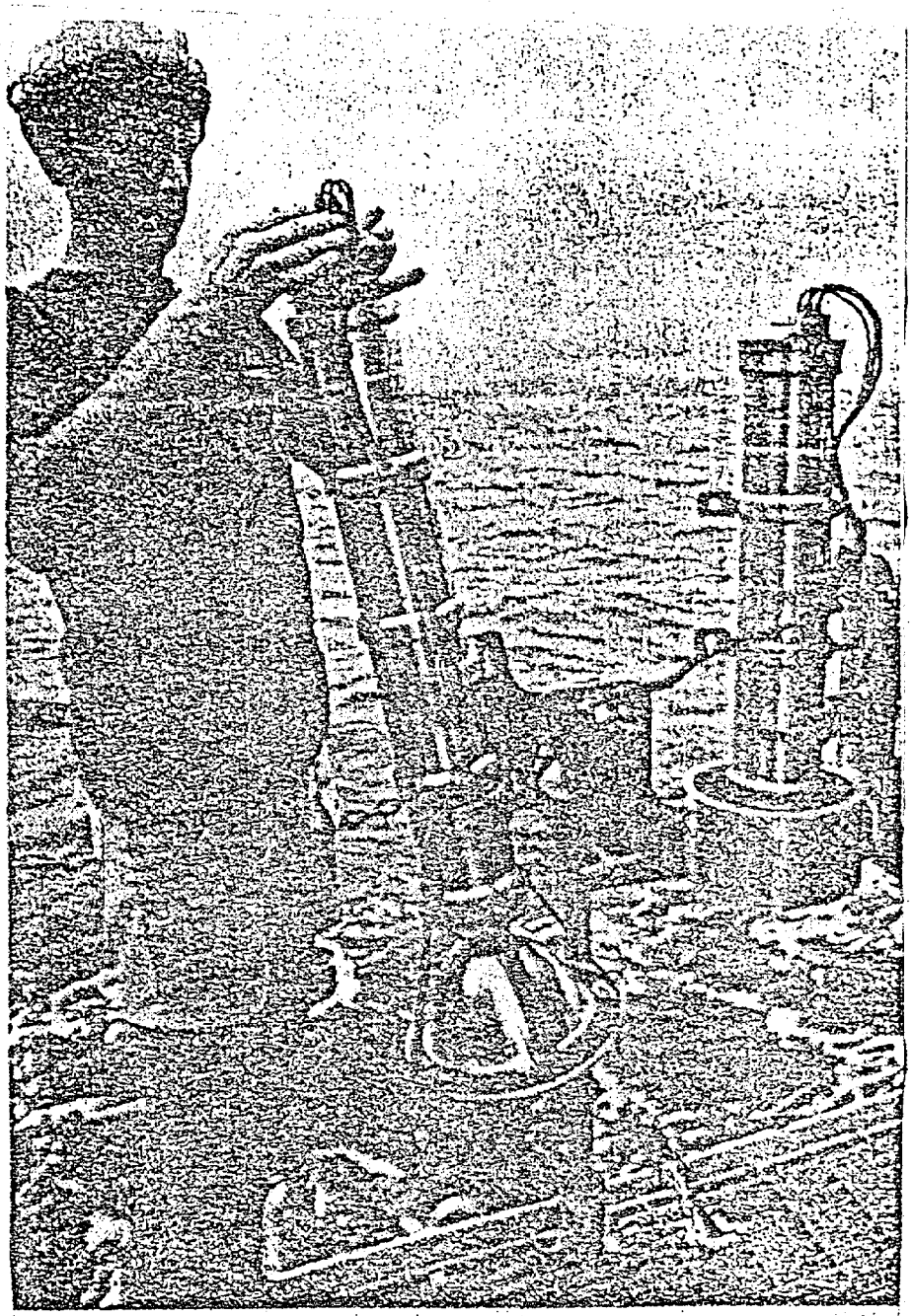
The first diver to see the Monitor up close was Tim Askew of Fort Pierce.

"It was fantastic," Askew said. "It's hard to explain how I felt when I first came up to the ship except that it was like looking back in time."

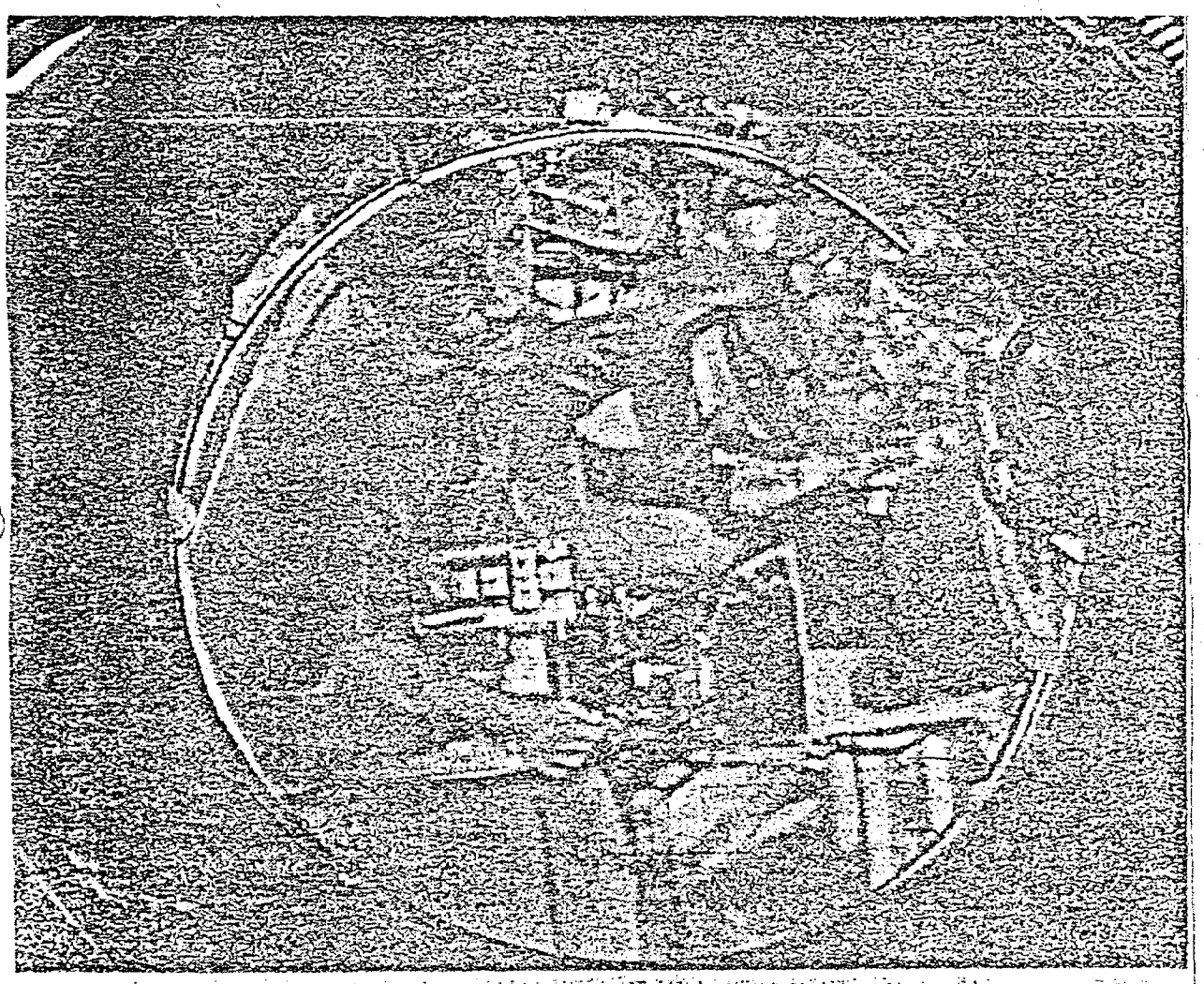
"The impression all of us have after being up here for a while is that we just got a bit of history between our teeth," Cook said. "Here we are working on a ship that went down 115 years ago. It gives us a real sense of excitement."

The Monitor sank during a violent storm while being towed to join land and sea Union attack on the strategic port city of Wilmington, N.C.

The ship had sailed less than a year and fought only one sea battle. Its duel with the Merrimack took place about 10 months earlier.



THE BIG CAMERA is readied to do its deep-sea snooping by Gene Melton, an electronic technician with Harbor Branch. The powerful cameras completed photographing the Monitor on Monday, and the ships are on their way home. (UPI Telephoto)



TIM ASKEW, a technician with Harbor Branch for four years, peers out of the porthole of the submersible used to reach the historic Monitor, 220 feet under the North Carolina waters. Askew, who lives in Vero Beach, was instrumental in the construction of the Sea Link II. (UPI Telephoto)

THE WASHINGTON POST AUGUST 4, 1977

Team Recovers Artifacts, Puts Men on Wreck of Monitor

By Ken Ringle
Washington Post Staff Writer

HATTERAS, N.C., Aug. 3—An undersea band of divers, technicians, archeologists and oceanologists wound up a 17-day probe of the U.S.S. Monitor wreck site yesterday after recovering artifacts and placing the first men on the historic ironclad since it vanished 115 years ago.

Working 220 feet beneath an often stormy sea on a site swept by fickle and potentially treacherous currents, the team returned with new and stunning films of the seldom-seen wreck, archeological photographs and measurements of the hull and turret, 200 pounds of armor plate and an underwater camera that had been snagged in the wreck when it was first discovered four years ago.

They also discovered and brought up a bucket-sized brass lantern that may be the same one whose red light signaled the last trace of the Civil War vessel before it foundered in a gale off Cape Hatteras on Dec. 31, 1862.

North Carolina state archeologist Gordon Watts said the Monitor is in "far better shape than we first thought . . . Most of the deck plating appears to be intact and the boilers and engine-room machinery appear to be sound. We're very encouraged." He said he thinks chances are excellent for eventually finding clues to the final minutes of the men who went down with the ship.

The Monitor was being towed south to Charleston, S.C., at the time, bound for further blockade duty of the embattled Southern states.

Only nine months after her famous if inconclusive battle with the Confederate ironclad Virginia (formerly the Merrimac) in Hampton Roads, the revolutionary 170-foot "cheesebox on a raft" was already historic.

With her [illegible] propeller, rotating gun turret and [illegible] decks, she altered forever the course of naval warfare in

But she didn't float very well.

When the gale struck, she began shipping water heavily. Her tow ship, the paddlewheel battleship Rhode Island, had to cut her adrift but sent a lifeboat back to rescue her 63-man crew.

On their third trip through the shrieking winds and towering seas, the rescuers from the Rhode Island saw the red distress light atop the Monitor's turret vanish in the night. At the ship's last location they found only an eddy in the storm tossed sea.

For the next 111 years no trace of the Monitor or the 16 men who sank with her was found.

Her sinking continued to spark the imagination of wreck hunters through the years, and in 1973 a Duke University expedition, outfitted with the arsenal of electronic boxes that power a modern undersea search, located the wreck 20 miles off Cape Hatteras and 220 feet deep.

The latest expedition returned to the site in mid-July with two surface ships, two small research submarines and divers skilled in working the hazardous depths beyond 100 feet.

The men and equipment were largely donated to the government by the Harbor Branch Foundation, a large private foundation in Fort Pierce, Fla., headed by an heir to the Johnson and Johnson pharmaceutical fortune. It was overseen by officials from the National Oceanographic and Atmospheric Administration.

The Duke expedition had returned with only fragmentary television film of the Monitor, capsized on the ocean floor, her characteristic turret askew beneath the wreck.

A later U.S. Navy survey, using the research vessel Alcoa Seaprobe—a sort of modified Glomar Explorer—compiled a photo-mosaic of the wreck viewed from above

The NOAA-Harbor Branch expedition set out to do much more, including a painstaking photogrammetric survey of the wreck, detailed photography of the outside and a few visible inside portions of the ship, and the rising of a loose metal armor plate for metallurgic analysis. Knowledge gained from these tasks, according to NOAA officials, would permit government scientists who have jurisdiction over the wreck site better to weigh later decisions on whether to attempt to raise the Monitor or evacuate it archeologically on the ocean floor.

The expedition succeeded on every count despite storms and 10-foot seas

San Francisco Chronicle ★ Fri., Aug. 5, 1977

Treasures From a Civil War Ironclad

tteras, N.C.

A group of divers, technicians, cheologists and oceanologists und up a 17-day probe of the nitor wreck site Wednesday af- recovering artifacts and placing e first men on the Civil War nclad since it vanished 115 years o.

Working 220 feet beneath an ten stormy sea on a site swept by kle and potentially treacherous rrents, the team members re- rned with new and stunning film the wreck, archeological photo- aphs and measurements of the ull and turret, 200 pounds of rmor plate and an underwater amera that had been snagged in ne Monitor when it was first iscovered four years ago.

They also discovered and rought up a bucket-sized brass ntern that may be the same one hose red light signaled the last race of the Civil War vessel before foundered in a gale off Cape latteras on Dec. 31, 1862.

North Carolina state archeologist Gordon Watts said the Monitor is in "far better shape than we first thought . . . Most of the deck plating appears to be intact and the boilers and engine-room machinery appear to be sound. We're very encouraged." He said he thinks chances are excellent for eventually finding clues to the final minutes of the men who went down with the ship.

The Monitor sank while it was being towed south to Charleston, S.C., for further duty in the blockade of the Confederate states.

Only nine months after her famous, if inconclusive, battle with the Confederate ironclad Virginia (formerly the Merrimack) in Hampton Roads, the revolutionary 170-foot "cheesebox on a raft" already had a place in naval history.

With her screw propeller, rotating gun turret and low decks, she altered forever the course of naval warfare in ship design and wrote an end to the age of sail.

But she didn't float very well.

When the gale struck, she began shipping water heavily. Her tow ship, the paddlewheel battleship Rhode Island, had to cut her adrift but sent a lifeboat back to rescue her 63-man crew.

On their trip through the shrieking winds and towering seas, the rescuers from the Rhode Island saw the red distress light atop the Monitor's turret vanish in the night. At the ship's last location they found only an eddy in the storm-tossed sea.

For the next 111 years there was no trace of the Monitor or the 16 men who sank.

Through the years, the Monitor's dissappearance sparked the imagination of wreck hunters, and in 1973 a Duke University expedition, aided by an arsenal of electronic gear, located the wreck 20 miles off Cape Hatteras in 220 feet of water.

The latest expedition returned to the site in mid-July with two surface ships, two small research submarines and divers skilled in working the hazardous depths beyond 100 feet.

The men and equipment were largely donated to the government by the Harbor Branch Foundation, a large private foundation in Fort Pierce, Fla., headed by an heir to the Johnson & Johnson pharmaceutical fortune. The expedition was overseen by officials from the National Oceanographic and Atmospheric Administration.

The Duke expedition had returned with only fragmentary television film of the Monitor, capsized on the ocean floor, her characteristic turret askew beneath the wreck.

The oceanographic administration-Harbor Branch expedition set out to do much more. It made a painstaking photogrammetric survey of the wreck and took detailed photographs of the outside and a few visible inside portions of the ship. Knowledge gained from these tasks, according to national oceanographic officials, would permit government scientists who have jurisdiction over the wreck site to bette weigh later decisions on whether t attempt to raise the Monitor o excavate it archeologically on th ocean floor.

The expedition succeeded o every count despite storms and ten foot seas, quixotic underwater vis bility, that ranged from 150 fee down to four feet and ocean bottor currents that varied vastly i strength and direction as the Gul Streem eddied over and round th wreck.

Washington Po

Monitor-ing Researchers Return to Link Port Tonight

By ANN MARIE LIPINSKI
Herald Writer

FORT PIERCE — When the travel-weary R-V Johnson and Sea Diver skim into port early Friday, there will be no champagne or confetti to greet the vessels. But when the crew members report to the Harbor Branch Foundation office that afternoon, they'll be swamped.

"We're ecstatic," said Harbor Branch spokeswoman Joy Quillen. "We've been sitting on pins and needles — we're so anxious to discover what they found."

The two research ships, triumphant after their photogrammetric survey of the historical Civil War battleship Monitor off Cape Hatteras, N.C., are scheduled to return to the Link Port on Old Dixie Highway, just north of Fort Pierce, sometime after midnight tonight.

CREW MEMBERS from Fort Pierce's Harbor Branch Foundation, along with the National Oceanic and Atmospheric Administration and the North Carolina Department of Cultural Resources completed the survey of the ironclad war ship on Tuesday.

The Monitor has been 220 feet under water in the Atlantic Ocean for more than 114 years.

In addition to the the successful photogrammetric survey — a precision photographic technque used to glean accurate measurements and ship scales — the crew also located a camera that had been lost below the sea during the 1973 expedition that discovered the Monitor.

ONE OF THE Harbor Branch divers found it during the final hours of research Tuesday and sent it to the surface in an inflatable bag.

"They picked up the camera, hoping it would still be good," said Harbor Branch engineering director Jean Buhler, "but we don't know yet if water leaked into the camera or not."

Also retrieved was a lantern and a deck plat which were aboard the Monitor when it sank during storm on Dec. 31, 1862, less than a year after it wa commissioned. The articles were brought to the surface in inflatable lift bags and are to be tested at Duke University's laboratories in Beaufort, N.C.

Photos taken by the surveying crew will be used to develop a three-demensional model of the ship an the surrounding area.

NEW TRIBUNE, August 5, 1977 Ft. Pierce, Fl.

Weary, Salt-Encrusted Crews Dock At Link Port; First Order: Sleep

By SALLY LATHAM
News Tribune Staff Writer

The weary and salt-encrusted crews of two research vessels disembarked at the Link Port docks north of Fort Pierce at approximately 9 a.m. today with one shared thought in mind—getting at least 12 hours sleep in a land-stable bed.

The sailors, scientists and technicians had been at sea for many days — some as long as three weeks — on the Harbor Branch mission of site-surveying the historic Civil War Battleship Monitor.

The old ironclad, which has been lying undisturbed for the past century on the bottom of the ocean off Cape Hatteras, was boarded for the first time since it sank in 1862 by Harbor Branch diver Gene Melton, a submersible technician.

"IT GAVE US all goose bumps," said Dr. Roger Cook, operations director of the entire mission.

Harbor Branch Foundation, with its sophisticated equipment and underseas know-how, was responsible for the ambitious project, tackled at the request of the National Oceanic and Atmospheric Administration. The purpose, Dr. Cook explained, was to get a total picture of the Monitor's characteristics, dimensions and condition, with the ultimate goal of raising it and restoring it as a public monument.

"This, however, will undoubtedly be several years away," he said.

It is now a "public monument," in that the waters surrounding the Monitor were declared a marine sanctuary, one of two in the United States. But at a depth of 220 feet, its only viewers are fish.

THE SHIPS ON the mission were the R-V Johnson and the Sea Diver, both of which are equipped with submersibles. Two of three large seagoing vessels in the Harbor Branch fleet, they rode out the tricky waters off Cape Hatteras without a problem, Dr. Cook said today.

The Sea Diver left Link Port for the site on July 15, and was at sea for the three weeks. The R-V Johnson went up a week later.

"The Johnson ran into some heavy weather," Dr. Cook told The News Tribune. "When it got there it was literally salt-encrusted."

The planned three-week mission was completed three days ahead of schedule, despite the tricky weather and currents for which Hatteras is so noted.

"One day, we had a visibility of four feet, and strong currents on the bottom," Dr. Cook related. "But for the most the weather was good, and we really took advantage of it. We'd start at 6 a.m., and work 'til 8 or 9 or 10 at night."

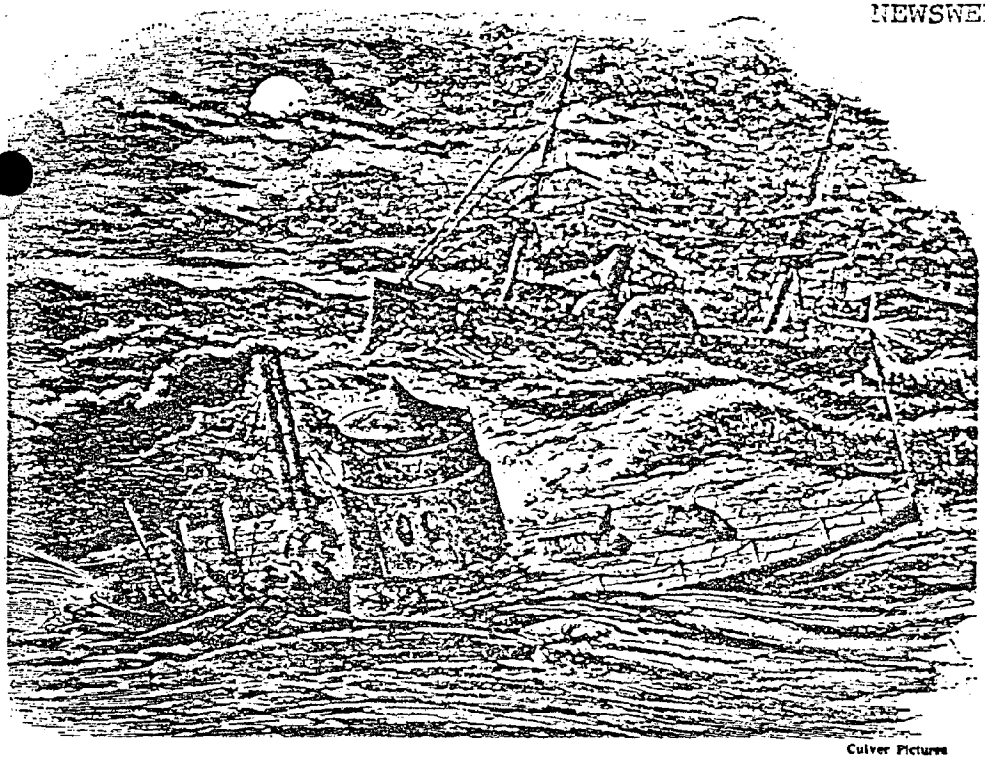
The lantern found on the Monitor gave the divers a thrilling sense of history, Dr. Cook said.

"WE BELIEVE IT was the lantern they hoisted when they were sinking, as a distress signal. After reading the historical accounts, then going down there and finding it — that gave us chills," Dr. Cook said.

The lantern was retrieved and put in the diving compartment of the Sea Link by local diver Tim Askew. Also brought up was a piece of the Monitor's deckplate, for testing to determine the feasibility of bringing the craft up into the air.

The camera reported recovered, in the United Press International story on Wednesday, was more than just a camera. It was a 250 pound camera system worth $4,000, lost in the first Duke University expedition after the Monitor was located in 1973.

"We had hoped we could salvage the film as well as the camera," Dr. Cook said, "but it was totally ruined."



Culver Pictures

The Monitor sinking off Cape Hatteras: 115 years later, plans for recovery

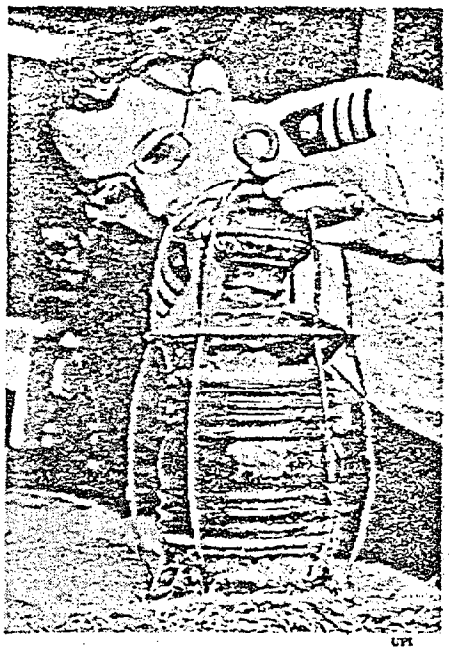
Monitor Mission

The tiny, windowed submarine nosed 200 feet deep into the waters off Cape Hatteras, N.C. Crammed into an observer bubble of the sub, 205-pound marine archeologist Gordon Watts spotted what looked like a beer can. No, said his companion Tim Askew, "that's a lantern." Last week the little sub brought the 18-inch lantern to the surface for ecstatic archeologists to identify. It is almost certainly the red distress signal of the U.S.S. Monitor—the last thing seen before the Union Navy's historic ironclad foundered in a storm in late 1862.

The lantern added a dramatic bonus to a seventeen-day adventure that, because of treacherous waters, required the precision of a space rendezvous. Ever since the wreck of the Monitor was discovered four years ago, archeologists have hoped to determine whether the vessel remains sound enough to raise. Now they have valuable new evidence to study: three-dimensional photographs of the ship and a motley collection of artifacts.

The Job: With its tapered hull and circular armored turret, the "cheesebox on a raft" gave birth to the modern battleship. The Monitor did the job for which it was built—standing off the Confederates' armor-plated Merrimack at Hampton Roads off the Virginia coast in March 1862—but less than ten months later it sank in the "graveyard of the Atlantic." Scientists led by Duke University geologist John Newton, discovered the ship in 1973 and several expeditions have surveyed it since then.

This time scientists mounted an armada that included an unmanned submarine, two four-man research subs and three support ships. They first dispatched the unmanned craft to take video tapes of the ship which lies upside down on its turret. "Incredible, just amazing," exulted Newton when he witnessed the pictures. Later the divers explored for treasures, scrambling on hands and knees over sand that shifted in mounds like dry snow. Gene Melton, a bronzed cave-diving specialist who may be the first human in 115 years to touch the Monitor, surfaced with a sense of awe. "It was quite a shock," he said after decompressing on the support ship R.V. Johnson, "so much larger than I thought it would be."



UPI

Red lantern: The last sight

Topside crews spent much of their time casting anxious looks at the sky. The clash of the southbound Labrador Current and the northerly Gulf Stream "makes for a confused, mixed-up sea," complained operations director Roger Cook of the Harbor Branch Foundation. "It never gives you more than two good days at a time." One day, for instance, the expedition set sail under azure skies and pleasant breezes but by midafternoon winds were gusting past 20 knots and Johnson skipper Joe Morgan was mumbling, "We gotta watch her close." Two hours later, Cook gave a quiet order: "We're going to recover the submarines."

Good News: The next day proved hardly better, but despite squalls the divers worked fast. Three minutes out of the hatch of sub 2, diver Richard Roesch secured the lantern and eleven minutes later, a heavily barnacled chunk of deck plate burst to the surface inside an orange helium-filled lift bag. Melton had provided more good news: the gun ports on the turret were closed, minimizing the corrosion of its contents by the salt water.

Next the researchers will analyze the photographs and artifacts to determine how best to preserve the ancient ironclad. Among the possibilities: cutting it into sections to be lifted to shore; using the CIA's mothballed Glomar Explorer to pick it up in one piece; and freezing a chunk of water and mud around it, then hauling the whole block into shallow water. Geologist Newton warns the archeologists to decide fast. The Monitor lies at the lip of the continental shelf near a 16,000-foot undersea chasm.

—PETER GWYNNE with EVERT CLARK off Cape Hatteras

BULLETIN #1

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MONITOR MISSION NEWS RELEASE

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JULY 18 ..... 2:30pm ..... FOUND MONITOR ON FIRST PASS WITH SIDE SCAN SONAR ..... TOM CUMMINGS (KLEIN ASSOCIATES) ONBOARD ..... R/V JOHNSON to call SEA DIVER ON 8281.2 at 1500 hrs.

..... WINDS 8 - 10 MPH ... SEAS CALM ..... LOST BAGGAGE OF COOK, FEILD, TIETZE AND SMOYER RECOVERED BY EASTERN AIRLINES ..... SEA DIVER EXPECTS TO FINISH AS PER OPS SCHEDULE FOR THIS DATE..... WILL ANCHOR AT 1800 hrs. in shallow water ..... ###

BULLETIN #2.

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MONITOR MISSION NEWS RELEASE

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JULY 19 ..... 10:15 am ..... FIRST DAY OPERATIONS A COMPLETE SUCCESS..... PERFECT SIDE SCAN DATA COLLECTED ON EVERY PASS UNDER SUPERVISION OF TOM CUMMINGS, KLEIN ASSOCIATES REPRESENTATIVE ..... OPERATION SECURED AT 1930 HOURS.

SECOND DAY .....SEA GUARDIAN EXPERIENCING TROUBLE WITH THRUSTER HYDRAULIC PUMP DRIVE ..... REPAIRS UNDERWAY - EXPECTED TO BE BACK ON STATION BY NOON..... SURFACE CURRENTS 2-3 KNOTS ..... SEAS 3 TO 4 FT.....###

B U L L E T I N # 3

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MONITOR MISSION NEWS RELEASE

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JULY 20 ..... 3:30pm ..... SEA GUARDIAN STILL UNDERGOING MECHANICAL REPAIRS..... EXPECT COMPLETION BY NOON THURSDAY (JULY 21)..... WITH TRANSIT TO AN ANCHORAGE AT DIAMOND SHOALS FOR THE NIGHT..... OPERATIONS TO COMMENCE 6:00AM FRIDAY (JULY 22) .....###

B U L L E T I N # 4

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MONITOR MISSION NEWS RELEASE

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Thursday ... JULY 21.... 1540 HRS..... SEA GUARDIAN REPAIRS MOVING ALONG .....WILL CHALLENGE HATTERAS INLET AT 1900 TONIGHT TO RENDEZVOUS WITH SEA DIVER TO ANCHOR FOR THE NIGHT AT DIAMOND SHOALS..... OPERATIONS TO COMMENCE EARLY FRIDAY AND CONTINUE THROUGH SUNDAY... WINDS HAVE MODERATED TO 10 KNOTS AND SEAS HAVE SUBSIDED.....

R/V JOHNSON IS NOW SCHEDULED FOR DEPARTING LINK PORT AT 0800 SATURDAY JULY 23.....###

MONITOR MISSION NEWS RELEASE

FRIDAY ... JULY 22 .... 1500 HRS..... SUE FROESCHLE, NOAA, REPORTS VIA LAND LINE THAT SEA GUARDIAN HAS "LOST ALL POWER" AND THAT "EMERGENCY" RECOVERY PROCEDURE OF THE CORD IS IN PROCESS..... WILL REPORT LATER.

1900 HRS.... SUE REPORTS THAT CORD OBTAINED TWO REELS OF TAPE AND TWENTY - 70MM PHOTOS OF MONITOR ....VISIBILITY GOOD. SEA GUARDIAN EXPERIENCED THE SAME PROBLEM WITH THE DRIVE TRAIN TO HYDRAULIC SYSTEM THAT OCCURRED IN FLORIDA TWO MONTHS AGO AND AGAIN EARLIER THIS WEEK.....THE CORD AND CLUNK HAVE BEEN RECOVERED WITH THE 12 VOLT EMERGENCY WINCH..... SEA DIVER AND SEA GUARDIAN WILL ANCHOR FOR THE NIGHT AND SEA GUARDIAN WILL PROCEED INTO HATTERAS SATURDAY AM..... THERE WILL BE NO OPERATIONS SATURDAY OR SUNDAY. SEA DIVER IS HAVING DIFFICULTIES WITH THE PORT MAIN TRANSMISSION.

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MONITOR MISSION NEWS RELEASE

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SATURDAY .... JULY 23.....11:00AM ..... ROGER CONFIRMS BY LAND LINE PREVIOUS COMMUNICATION. SEA GUARDIAN IS BEING LOADED ABOARD TRAILER AT THE COAST GUARD STATION AND BEING READIED FOR RETURN TO LINK PORT. DIFFICULTIES WITH SONAR, STATION KEEPING, LSI VALVE, AUX. HYDRAULIC PUMP DRIVE COUPLING TOO MUCH TO REPAIR TO KEEP UP WITH THE SCHEDULE. WHILE WORKING, SEA GUARDIAN DID ESTABLISH THE VISIBILITY ON THE BOTTOM AS OUTSTANDING AND THAT THE CURRENT WAS .3 KNOTS.....

R/V JOHNSON IS UNDERWAY FROM LINK PORT AND WILL ARRIVE AT THE SITE SUNDAY MIDNIGHT TO START OPERATIONS AT 0700 MONDAY MORNING.....

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MONITOR MISSION NEWS RELEASE

July 25, 1977 ..... 1950 hrs..... LAND LINE PHONE CONTACT WITH SUE FROESCHLE (NOAA).....

JOHNSON-SEA-LINK II LAUNCHED AT 1300 HOURS WITH GORDON WATTS, N.C. STATE ARCHEOLOGIST ABOARD,AND J-S-L I LAUNCHED AT 1330 HRS. WITH DR. EDGERTON ABOARD AS OBSERVER.....

RECON MISSION .... LOADED THE STEREO CAMERAS AT TWO DIFFERENT F-STOPS AS A TEST FOR BEST EXPOSURE -- FILM TO BE DEVELOPED TONIGHT BY SMOYER ABOARD SEA DIVER.....

VISIBILITY ONLY 20 TO 25 FT. AS COMPARED WITH 100+ FT. VISIBILITY ON CORD MISSION --- LOCATED AND OBSERVED THE EDGERTON CAMERA. LOCATED A LANTERN (POSSIBLE NAVIGATION LIGHT) ABOUT 30 FT. FROM MONITOR -- NO OTHER OBSTACLES IN THE VACINITY --- WIND AND SEAS BUILDING --- BOTH SUBMARINES RETRIEVED AT 1500 HRS....

LOCK OUT OPERATIONS TO ESTABLISH "BASE LINE" SCHEDULED TO START AT 0700 TUESDAY.

MIKE MULCAHY ISSUING UPI PRESS RELEASE WITHIN THE HOUR.

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MONITOR MISSION NEWS RELEASE

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JULY 26 ------ 1520 HRS..... SINGLE SIDE BAND CONTACT ON 150 WATTS ..... POOR COMMUNICATION BUT ROGER REPORTED THAT EACH SUB HAD MADE ONE 30 MINUTE DIVE..... OPERATION ABORTED BECAUSE OF POOR VISIBILITY AND 1.5 KNOT CURRENT ON BOTTOM....

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B U L L E T I N #9

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MONITOR MISSION NEWS RELEASE

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JULY 27 ..... 0943 HRS..... SINGLE SIDE BAND CONTACT VIA LORAINE CALL SYSTEM .....1000 WATTS ..... LOUD AND CLEAR ..... INFO RECEIVED FROM ROGER COOK.....

SEA DIVER STARTER ON STARBOARD ENGINE OUT ..... HAVING ONE FLOWN IN .....

WEATHER IMPROVED OVER TUESDAY ...(TUESDAY'S REPORT WAS: SEAS AND WINDS BUILDING).....

SUB TO BE LAUNCHED AT 1013 TO CHECK BOTTOM VISIBILITY ....

MR. LINK AND DR. JONES TO ARRIVE TODAY.....WILL CALL LINK PORT AT 1500.....

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B U L L E T I N #10

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MONITOR MISSION NEWS RELEASE

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JULY 27 ..... 1515 HRS ..... SINGLE SIDE BAND CALL FROM COOK ..... JOHNSON-SEA-LINK II MADE LOCK OUT DIVE WITH 40 MINUTES BOTTOM TIME.....DIVER IN CHAMBER AT THIS TIME ON O_2.....VISIBILITY REPORTED 40 FT..... CURRENT CONSIDERABLY LESS THAN YESTERDAY.....WIND AND CURRENT FROM 290°.....SEAS BUILDING.....

240 PHOTOS OF TURRET AND EDGERTON CAMERA SYSTEM TAKEN WITH SUBMARINE MOUNTED CAMERA AND 90 PHOTOS TAKEN WITH DIVER HAND HELD CAMERA.....THE DIVER REPORTS THAT THE EDGERTON STROBE AND CAMERA ARE FLOODED.....

MESSRS. LINK AND JONES AND A NEW STARTER FOR THE SEA DIVER ENGINE WILL ARRIVE IN HATTERAS TONIGHT AND BE TRANSPORTED TO THE SITE BY CHARTER BOAT EARLY TOMORROW.....
R/V JOHNSON WILL CALL IN TOMORROW AT 1100 HRS.....

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B U L L E T I N #11

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MONITOR MISSION NEWS RELEASE

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JULY 28 ..... 1015 HRS..... SEAS RUNNING 6 to 8 FEET ..... PLANNING A LONG LOCK-OUT DIVE TODAY TO SET "BASELINE" AND GRID.....SEA DIVER BACK ON THE LINE.....MESSRS. LINK AND JONES ABOARD....

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MONITOR MISSION NEWS RELEASE

JULY 29 ..... 1715 HOURS ..... LORAINE CALL FROM R/V JOHNSON .... on STATION AT THIS HOUR READY TO MAKE 2nd LOCK-OUT FOR THE DAY..... MR.LINK ABOARD J-S-L I FOR 1st DIVE TODAY.....VISIBILITY 70 FT..... BASE LINE AND GRID SET.....OPERATIONS SCHEDULED TO CONTINUE AT 0800 TOMORROW (SATURDAY) IF WEATHER HOLDS.....

SEA DIVER TRANSMISSION WILL BE "BOLTED-SOLID" FOR RETURN TO LINK PORT TO MAKE "MINIMAL" REPAIRS..... WE'LL PROCEED WITH PREPARATIONS FOR "CATERPILLER REPLACEMENT".....

MESSRS. LINK & JONES WILL RETURN TO HARBOR BRANCH ON SATURDAY OR SUNDAY.....

NEXT RADIO CONTACT SCHEDULED FOR 1030 HRS, SATURDAY MORNING 7/30.....

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MONITOR MISSION NEWS RELEASE

JULY 30.....1031 HOURS.....R/V JOHNSON CALLED BUT TOO MUCH INTERFERENCE TO BE UNDERSTANDABLE.....

1040 HRS.....SEA DIVER REPORTED WINDS NOW 25-35 KNOTS N.W. .....SEAS 5 to 6 FT.....LARGE SWELLS AND CHOP ON TOP .....HOLDING FOR WEATHER.....

MR. LINK CONFIRMED MESSAGE FROM PREVIOUS DAY ALTHOUGH ALL TRANSMISSIONS WERE BROKEN UP BY POWERFUL CUBAN STATION..... MESSRS. LINK & JONES WILL BE IN LINK PORT ON MONDAY.....

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MONITOR MISSION NEWS RELEASE

AUGUST 1 ----- 0925 HRS ..... ROGER REPORTS YESTERDAY'S WEATHER WAS IDEAL .....2-3 FT SEAS....SURFACE SMOOTH .... CONDUCTED 2 - 4 HOUR DIVES AND 2 PHOTOGRAMMETRIC SURVEYS ..... COMPLETED ALL TOPSIDE PHOTOGRAPHY.....

THIS MORNING PLAN A DIVE USING COLOR FILM ..... 2 SUBS TO BE USED TO RECOVER CAMERA, PLATE AND LANTERN..... PERMISSION TO RECOVER LANTERN IS EXPECTED BEFORE NOON TODAY.....EXPECT COMPLETE WRAP-UP BY TOMORROW.....

JOHN NEWTON AND GORDON WATTS ON BOARD ..... WILL CALL AGAIN AT 1600 HRS. TODAY .....EVERYTHING SHOULD BE COMPLETED BY THEN....

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MONITOR MISSION NEWS RELEASE

AUGUST 1, 1977 ------ 1730 HOURS ----- SEA DIVER REPORTS "VERTICAL" COLOR PHOTOS TAKEN DURING MORNING DIVE. "OBLIQUE" COLOR PHOTOS TAKEN DURING AFTERNOON DIVE. NO LOCKOUT DIVES MADE ---- WEATHER BUILDING -- WIND AT THIS TIME 30 KNOTS.

WILL TRY TO RETRIEVE BASELINE, GRID, EDGERTON CAMERA, PLATE AND LANTERN TOMORROW.

MONITOR MISSION NEWS RELEASE

AUGUST 2 .... 1345 HRS..... MIKE MULCAHY CALLED ON LANDLINE TO ADVISE THAT ROGER REPORTS -------

MISSION ACCOMPLISHED!!!

THE LANTERN, CAMERA AND PLATE WERE RECOVERED THIS MORNING BY RICHARD ROESCH.....THE DIVERS WILL BE IN DECOMPRESSION UNTIL 1500 HRS.....THE ARTIFACTS WILL BE TRANSPORTED VIA R/V JOHNSON TO THE DUKE MARINE LABORATORY IN BEAUFORT, N.C. THIS AFTERNOON..... SEA DIVER WILL PROCEED TO RENDEZVOUS WITH R/V JOHNSON AT THE BEAUFORT SEA BUOY.....THEN BOTH VESSELS WILL TRAVEL TOGETHER TO LINK PORT.

CBS AND NEWSWEEK REPORTERS ARE ONBOARD TODAY.....

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MONITOR MISSION NEWS RELEASE

AUGUST 3 ..... 0940 HOURS .....ROGER COOK AND TOM SMOYER PHONED FROM CEDAR ISLAND ON THEIR WAY TO CATCH THE FIRST PLANE HOME.....

R/V JOHNSON SAILED FROM THE MONITOR SITE AT 1630 HRS. FOR A MIDNIGHT ARRIVAL AT THE DUKE MARINE LABORATORY IN BEAUFORT TO OFFLOAD THE ARTIFACTS.....

JOHNSON-SEA-LINK II RECOVERED THE BASELINE GRID AND DISTANCE POLE LEAVING THE SANCTUARY JUST AS THEY HAD FOUND IT.....

SEA DIVER STAYED ON LOCATION TO RETRIEVE THE MOORINGS.....

SEA DIVER AND R/V JOHNSON WERE SCHEDULED FOR AN 0100 HOUR RENDEZVOUS AT THE BEAUFORT SEA BUOY FOR RETURN TOGETHER TO LINK PORT...E.T.A. IS LATE THURSDAY EVENING.....

TONIGHT ON THE 6:30PM CBS WALTER CRONKITE NEWS, THERE WILL BE A TWO-MINUTE SPECIAL COLOR VIDEO TAPE SHOWING ARTIFACTS AND HARBOR BRANCH CREW.....IF IT DOES NOT MAKE THE NEWS TONIGHT, IT WILL BE SHOWN THURSDAY OR FRIDAY.....

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BULLETIN # 19

MONITOR MISSION NEWS RELEASE

AUGUST 3 ..... 1015 HOURS .....REPORT FROM R/V JOHNSON .....

THEY ARE NOW 11-12 MILES SOUTH OF FRYING PAN SHOALS .....

RECEIVED A BEAUTIFUL RECEPTION AT DUKE MARINE LABORATORY

IN BEAUFORT YESTERDAY.....DEPARTED BEAUFORT AT 0150 HOURS

..... IN PURSUIT AND CATCHING UP TO SEA DIVER NOW.....

E.T.A. DAYBREAK FRIDAY (APPROX. 0700 HRS.) .....

WEATHER IS FAVORABLE -- NOT SMOOTH BUT FAIR ....

NEXT COMMUNICATION FROM R/V JOHNSON AT 1630 TODAY ...

REPORT FROM SEA DIVER ... TRAVELING 9.1 KNOTS .....

E.T.A. APPROX. 0700 HRS. FRIDAY.....

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MONITOR MISSION NEWS RELEASE

8-3-77 ------- 1635 HOURS ------- SEA DIVER REPORTS POSITION AS 70 MILES EAST OF CHARLESTON, SOUTH CAROLINA, ON A HEADING OF 245°.

WILL CALL TOMORROW AT 1100 HOURS WITH A NEW STATUS REPORT AND UPDATE OF ETA AT LINK PORT.

MONITOR MISSION NEWS RELEASE

AUGUST 5 .... 0830 HOURS ..... THE CREW ARRIVED ..... SAFE, SOUND AND TIRED ..... R/V JOHNSON FIRST TO ARRIVE FOLLOWED SHORTLY BY SEA DIVER ..... LINK PORT RECEPTION COMMITTEE MET CREW AT DOCK ..... CONGRATULATIONS TO ALL FOR JOB WELL DONE!!!!!

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